

PINUS LONGAEOVA IN THE STANSBURY MOUNTAINS, UTAH

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ABSTRACT.—A new record of *Pinus longaeva* D. K. Bailey in the Stansbury Mountains, north of the known range of the species, is reported.

Bristlecone pine (*Pinus longaeva* D. K. Bailey) occurs in the Great Basin on high ridges and plateaus, which are often exposed. In Utah, the northern-most documented occurrences of *Pinus longaeva* are at about 40 degrees north latitude in the Deep Creek Mountains, Tooele County, and above the Bad Land Cliffs, Duchesne County (Fig. 1). Johnson (1970:25) indicated presence of the species in the western Uinta Mountains, Summit and Duchesne counties, but Bailey (1970, Fig. 3) mapped the Uintas only as a possible habitat without docu-

mented occurrence. Bailey (1970, Fig. 3) also showed the Stansbury Mountains, Tooele County, as a possible but unproven location. During recent dendroclimatological field research, the authors discovered a living bristlecone pine in the Stansbury Mountains, well north of the known range limit.

Deseret Peak, at 3362 m, is the highest point in the Stansbury Mountains. The mountain bears considerable evidence of Quaternary glaciation, in the form of cirques, U-shaped valleys, and moraines.

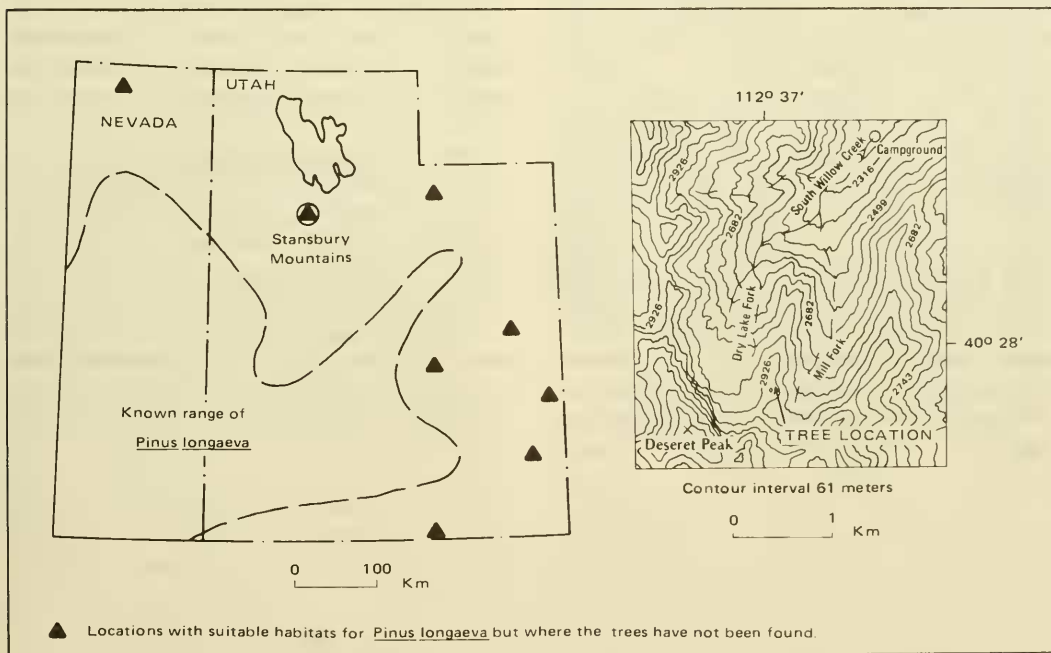


Fig. 1. Location map. Range of *Pinus longaeva* from Bailey (1970, Fig. 2). Site location from Deseret Peak quadrangle, U.S. Geological Survey 15-minute topographic series.

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The bristlecone pine is located northeast of the peak, at about 2960 m on the east side of the arête between Dry Lake Fork and Mill Fork (Fig. 1). The tree is at the head of a steep NNE-trending couloir (slope about 47 degrees) cut into the ESE-facing slope, and is about 25-30 m below the highest point of the ridge. The site is steep and rocky, and is exposed to direct sunlight and wind. Soil, only locally present, is thin, stony, coarse sand. The pine appears to be rooted directly in the light-colored quartzite bedrock (Cambrian Tintic quartzite; Rigby 1958).

Other tree species in the vicinity of the bristlecone pine include *Pinus flexilis* James, *Picea engelmannii* Parry, *Pseudotsuga menziesii* (Mirb.) Franco, and *Abies lasiocarpa* (Hook.) Nutt. Ground cover consists of a few scattered clumps of grasses and composites. Two standing snags a few meters uphill from the bristlecone pine have form and bark similar to the live pine, but positive identification was not possible. No other bristlecone pines, dead or living, were found in the immediate area.

The tree is of erect form, about 7.5 m tall. The single trunk (55 cm diameter) divides about 1 m above the ground into three major fastigate limbs, of which two are dead. Branches are pendulous, but the crown is compact. A major root extends along the ground surface for some 3 m uphill, perhaps indicating down-slope movement. The cambium shows evidence of extensive dieback; two strips of live material cover perhaps one-third of the surface of the trunk. Needles, each about 20-25 mm long, occur in fascicles of five. Each needle

bears two resin ducts, but only a very few needles have resin exudations. A single open cone was on the tree and was collected. It is about 90 mm long, has a rounded bottom, bears over 100 scales, and has fine reduced bristles. The morphological characteristics are consistent with classification as *Pinus longaeva* (Bailey 1970). A voucher specimen of a twig and the cone is housed in the Garrett Herbarium, University of Utah.

A preliminary examination of a radial core, obtained with an increment borer, indicates 1225 annual rings.

The occurrence of *Pinus longaeva* on quartzite, while not unprecedented, is somewhat unusual. The species is usually found on limestone or dolomite, perhaps because of competition experienced on other substrates (Bailey 1970). In the Stansbury Mountains, the ridge on the east side of Mill Fork is Cambrian Teutonic limestone (Rigby 1958). A search of that ridge might reveal more bristlecone pine individuals.

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